

matter; and in any case we should have to assume in each cell-system, not a single primordial sac, but as many of these as there are of superimposed cells (*e. g.* figs. 51 & 52, 80–85), even if it were permissible, in opposition to the idea set up by the founder of this theory, to give the name of the primordial sac to that layer of the cell-wall which is the last to give up its original peculiarity.

In this case the denomination employed by me for the tissue-cell, of “a cell-system consisting of cells nested one within the other,” might be altered into “a tissue-cell consisting of primordial sacs nested one within the other.”

Just as the organism requires the complete, normal, endogenous, serial development and the harmonious cooperation of all its elementary organs, for the perfect unfolding of its typical form and functions, the normal structure and activity of each of these elementary organs depends upon the undisturbed development of all these simple organizations, which stand in an intimate reciprocal relation to each other, the cells engaged in a constant interchange of materials, with a structureless spherical envelope and heterogeneous unorganized contents produced in the plastic juice of the mother cell.

It is only in the duration of the reciprocal action of the contents and membrane—the two constantly changing constituents of the cell—that its organization consists. An absolute stoppage of the change of materials of all its parts is coincident with the cessation of the organizatorial activity of the organism.

The opposite idea—namely that the secretion-structure, the cellulose membrane, just as the calcareous shell is the house of the snail, forms the chamber into which plant-life retires, the house of the plant-cell, and afterwards its tomb—would become, if it found acceptance, the winding-sheet of science.

XXI.—*On a new Generic Type of Fishes discovered by the late Dr. Leichardt in Queensland.* By ALBERT GÜNTHER, M.A., M.D., Ph.D.

[Plate VII.]

SIR DANIEL COOPER, Sir Philip G. Egerton, and Mr. G. Krefft have favoured me with photographs of a fish obtained by the late Dr. Leichardt in the Burdekin River, which evidently is the type of a new and remarkable genus. The specimen from which the photographs were taken is a dry skin, 15 inches long, preserved in the Australian Museum at Sydney. The photograph sent by Sir P. Egerton was accompanied by a scale taken from the middle of the side of the Sydney specimen, and shows a structure very similar to that of the scales of the

African genus *Heterotis*. These materials alone appeared almost sufficient to assign to the new fish its systematic position in the neighbourhood of *Chirocentrus* or *Heterotis*, when, to my great satisfaction, a second specimen was found in the collection of the British Museum. It had been sent by the unfortunate Mr. Gilbert as a specimen collected by Leichardt; and it may have been obtained at the same place and time as that in the Sydney Museum; it is also stuffed, but considerably larger, having a length of 28 inches.

Sir Daniel Cooper informs me that it is probably the same fish which has been caught by Mr. E. F. Hill in a creek at a station called Princhester, 90 miles from Rockhampton: if this be really the case, he hopes to obtain specimens in spirit from this place, by which we may be enabled to settle some interesting points regarding its anatomy, especially the question whether, like *Heterotis*, it is provided with a superbranchial organ.

I proceed to give the description*.

SCLEROPAGES.

Body oblong, compressed, covered with large scales; belly longitudinally keeled; head compressed, infraorbital bones much enlarged, covering the cheek entirely; cleft of the mouth very wide, with the lower jaw prominent; coarse cardiform teeth in both jaws and on the palate. Dorsal fin of moderate length, opposite the hind part of the anal, which is elongate; pectorals well developed; ventrals small.

Scleropages Leichardti. Plate VII.

D. 20. A. 31. P. 9. V. 5. L. lat. 35. L. transv. 3/4.

The height of the body is rather more than the length of the head, which is contained thrice and three-quarters in the total (without caudal); the upper profile, from the dorsal fin to the snout, is nearly straight, whilst the lower is curved upwards from the subthoracic region. The cleft of the mouth is oblique, very wide, extending to behind the eye; the mandible is strong, long, nearly two-thirds of the length of the head; it projects beyond the upper jaw, and is furnished with a pair of very small barbels near the symphysis; the intermaxillary is short, and situated at the extremity of the upper jaw, whilst the maxillary forms the side. Both jaws are armed with a series of small, closely-set, conical teeth, equal in size: a band of coarse cardiform teeth runs round the palate; but whether these teeth really belong to

* Whilst this paper was passing through the press, I have found that the genus *Scleropages* is closely allied to, or identical with, *Osteoglossum*. Cf. *O. formosum*, Schleg., from Borneo.

the palatine bones cannot be ascertained, on account of the dry state of the specimen. The snout is short, not much longer than the eye, the diameter of which is one-sixth or one-seventh of the length of the head. The eye is situated immediately below the upper profile of the head; the nostrils are close together, midway between the eye and the extremity of the upper jaw. Inter-orbital space flat, its width being contained thrice and three-quarters in the length of the head. Cheek very flat and broad, entirely covered by the two posterior infraorbital bones, which extend downwards and backwards to the limb of the præoperculum; they are finely striated, like the operculum. Operculum more than twice as high as long, with the posterior margin rounded and continued into a broad membranous strip. Sub- and inter-operculum very small. The course of the muciferous channels through the bones of the head is indicated by a number of oblong cavities closed by membrane.

The dorsal fin is placed above the hind part of the anal, terminating at no great distance from the caudal; its anterior rays are short, and increase in length to the twelfth, behind which the rays again become shorter. Caudal fin rounded; anal of the same height as the dorsal, the rays about the twenty-fourth being the longest. The first pectoral ray is exceedingly strong, compressed, and nearly as long as the head; however, it does not extend to the very short ventral fin, the base of which corresponds to the eleventh scale of the lateral line.

The scales are very large, higher than long, with the exposed surface minutely granulated, and with a network of fine channels over the inner surface, the meshes being concentrically arranged round a larger mesh in the middle. Each scale of the lateral line is pierced by a single large elliptical hole.

The entire body is finely dotted with brown; vertical fins and opercular membrane with small whitish spots.

XXII.—*Description of a new Species of Callionymus from Australia.* By Dr. ALBERT GÜNTHER.

Callionymus Papilio.

THIS species belongs to the group with the gill-opening reduced to a small foramen on the upper side of the neck, and with the lateral line single.

D. 4 | 7. A. 6. C. 11.

Præopercular spine considerably shorter than the head, bifid at its extremity, both points being directed upwards. The rays of the vertical fins long, those of the second dorsal longer than those of the first, and nearly equal in length to the middle caudal